BEHNAZ KHAKBAZ, PH.D., EIT

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CIVIL / WATER RESOURCES PROFESSIONAL

SUMMARY OF QUALIFICATIONS

- US Citizen.
- Highly accomplished recent Ph.D. recipient seeks position as a Civil Engineer/Hydrologist/Hydraulics professional.
- Experience includes rainfall-runoff analysis, watershed modeling and delineation, distributed hydrologic modeling, model calibration/parameter estimation using manual / automatic calibration schemes, hydraulics analysis, routing, application of remote sensing data in hydrologic models, geographic information system (GIS), and open channel and pipeline flows.
- Experienced in using Matlab, Fortran, and C programming languages; Microsoft Office Suite (Word, Excel, and PowerPoint); ArcView (GIS), AutoCAD, Civil3D; hydraulics models including HEC-HMS, HEC-RAS, HEC-GeoHMS.
- Extensive experience of National Weather Service Hydrologic models including SAC-SMA (lumped rainfall-runoff model), HL-RDHM (distributed rainfall-runoff model), and SNOW17 (snow accumulation and ablation model).
- Extensive publication credits, including four papers in peer-reviewed journals.
- Relevant courses taken include: Hydraulic Structure Design, Hydraulic Flow in Porous Media, Engineering Economy, Engineering Probability and Statistics, Surface Water Hydrology, Watershed Modeling Using GIS, Computational Engineering Problem Solving Using Matlab, and Introduction to Remote Sensing.
- Recognized for excellence on many occasions; excellent communications and interpersonal skills.
- Proven success in increasing value and improving productivity; detail oriented; fast- learner and adaptable.
- Results-driven problem solver with proven success meeting rigorous deadlines, and extreme attention to detail.

EDUCATION

PH.D. IN CIVIL ENGINEERING / WATER RESOURCES 2010
UNIVERSITY OF CALIFORNIA IRVINE Irvine, CA
Thesis: Towards improving streamflow simulations using distributed rainfall-runoff models
GPA: 4.0/4.0

MASTER OF SCIENCE IN CIVIL ENGINEERING / HYDRAULIC STRUCTURES 2001
SHARIF UNIVERSITY OF TECHNOLOGY Tehran, Iran
Thesis: Risk and reliability analysis of overtopping of river levees
GPA: 3.45/4.0

BACHELOR OF SCIENCE 1998
SHARIF UNIVERSITY OF TECHNOLOGY Tehran, Iran

PROFESSIONAL EXPERIENCE

RESEARCH ASSISTANT 2005 – 2010
UNIVERSITY OF CALIFORNIA IRVINE Irvine, CA

- Worked in the Center for Hydrometeorology and Remote Sensing (CHRS) in order to develop a semi-distributed hydrologic model using SAC-SMA (lumped rainfall-runoff model of National Weather Service) as the water balance component and Kinematic Wave as the routing component.
- Selected projects included the second phase of International Distributed Modeling Intercomparison Project (DMIP2) of the National Weather Service with developed semi-distributed model, which is one of the top 5 best participated models in DMIP2 project; and modifying the distributed hydrologic model of National Weather Service (HL-RDHM) for subsurface water-exchanges between grids, which could improve the model performance compared to the original model.
- Both projects required applying models on selected basins in the Oklahoma and California region utilizing ArcView (GIS), HEC-GeoHMS for watershed delineation, and using gridded data as inputs to the models.
- Published in the Journal of Hydrology and Water Resources Research Journal; presented posters and presentations in conferences and workshops.

INTERN 06/2008 – 08/2008
OFFICE OF HYDROLOGIC DEVELOPMENT Silver Spring, MD
NATIONAL OCEANIC ATMOSPHERIC ADMINISTRATION / NATIONAL WEATHER SERVICE/

- Participated in 10-week internship in distributed Hydrologic modeling group to communicate ideas for "Modification of NWS distributed hydrologic model (HL-RDHM) for subsurface water exchanges between grids."
- Worked closely with the two key people in the group -- developer of the HL-RDHM model, and HL-RDHM programmer– proving scientific and programming knowledge needed to modify HL-RDHM model codes professionally written in Fortran and C programming languages.

TEACHING ASSISTANT 2007 – 2008
UNIVERSITY OF CALIFORNIA IRVINE Irvine, CA

- As a Ph.D. candidate, spent two fall quarters as teaching assistant for a professor teaching Hydrology. Required extensive knowledge of the coursework, and the ability to work with and guide students.

DESIGN ENGINEER 2000 – 2005
BANDAB CONSULTING ENGINEERS Tehran, Iran

- Projects included drafting plans/profiles for the irrigation network of a water resource project; conducting hydraulics design for pipelines; verifying CAD drafts.
- Prepared technical reports for supervisor on an annual basis.
- Established and maintained positive relationships with other departments within the company in order to respond to their queries, and assisted senior engineers.

INTERN 07/1999 – 11/1999
ABGIR CONSULTING ENGINEERS Tehran, Iran

- Participated in Phase 0 of a geological study of Silveh earth dam.

RESEARCH ASSISTANT 1998 – 1999
SHARIF ENVIRONMENT & WATER RESEARCH CENTER Tehran, Iran

- Risk and reliability analysis of overtopping of Hamoon levees.

ASSOCIATIONS / AFFILIATIONS / HONORS

- 2-year fellowship from Office of Hydrologic Development/ NOAA/NWS for modification of distributed hydrologic model of NWS for grid water exchanges, while working toward Ph.D. (2008-2010)
- Outstanding Achievement in Doctoral Education in Civil Engineering from the Association of Professors and Scholars of Iranian Heritage (2010)
- 2007 Fariborz Maseeh Best Research Poster Award in the Henry Samueli School of Engineering, Energy and Environment Research Symposium for "Hydrologic Modeling for Flood Forecasting: A Distributed Modeling Experiment"
- World Lab scholarship in Hydrological Science and Water Resources Engineering (2005-2006)
- Ranked second among Iranian authors in student branch for the book, "Soil Mechanic Laboratory" (1999)
- Ranked #283 from 200,000+ participants of nationwide Students Exam for B.Sc. Program in Iran (1994)
- Participant of Distributed Modeling Intercomparison Project, Phase II (DMIP2) in NWS Office of Hydrologic Development
- American Geophysical Union member
- American Meteorological Society member
- Iranian American Society of Civil Engineers member

JOURNALS

Khakbaz, B., Imam, B., Sorooshian, S., Koren, V., Cui, Z., Smith, M. B., Restrepo, P., 2011. **"***Modification of the National Weather Service distributed hydrologic model for subsurface water exchange between grids***",** Water Resources Research, Accepted for publication.

Behrangi, A., **Khakbaz, B.,** Aghakouchak, A., Jaw, T.C., Hsu, K., Sorooshian, S., 2011. **"** *Hydrologic evaluation of satellite precipitation products at basin-scale,*" Journal of Hydrology, 397, 225- 237.

Khakbaz, B., Imam, B., Hsu, K., Sorooshian, S., 2009. **"***From lumped to distributed via semi-distributed: Calibration strategies for semi-distributed hydrologic models,***"** Journal of Hydrology, the special issue of "Distributed Modeling Intercomparison Project, Phase 2," In press.

Behrangi, A., **Khakbaz, B.,** Vrugt, J. A., Duan, Q and Sorooshian, S., 2008. **"***Comment on: Dynamically dimensioned search algorithm for computationally efficient watershed model calibration***"** by Bryan A. Tolson and Christine A. Shoemaker**,** Water Resources Research., doi:10.1029/2007WR006429.

PRESENTATIONS / POSTERS

Khakbaz, B., Imam, B., Hsu, K., Sorooshian, S.**,** Koren, V., Cui, Z., Smith, M., Restrepo, P., "***Modification of the NWS distributed model to account for subsurface water exchanges between grids,***" Poster presentation in AGU Fall meeting, San Francisco, CA, Dec. 2009.

Behrangi, A.**, Khakbaz, B., Jaw, T. C.,** Hsu, K., Imam, B., Sorooshian, S.**,** "***Evaluation of satellite-based high resolution precipitation products for catchment hydrologic forecasting,***" Poster presentation in AGU Fall meeting, San Francisco, CA, Dec. 2009.

Khakbaz, B., Koren, V., Smith, M., Sorooshian, S., "***Modification of the distributed modeling structure of NWS to account for grid water exchange,***" National DOH workshop, NOAA/NWS Headquarter, Silver Spring, MD, July 2008.

Khakbaz, B., Behrangi, A., Hsu, K., Imam, B., Sorooshian, S., "***Distributed Hydrologic Modeling in the Western US Using SNOW17 and SAC-SMA,***" AGU Joint Assembly meeting, Fort Lauderdale, FL., May 2008.

Khakbaz,B., Hsu,K. and Sorooshian, S. "***A Semi-Distributed Hydrologic Model for Streamflow Simulation Using the Sacramento Soil Moisture Accounting Model (SAC-SMA)***" Poster Presentation in Fall AGU Meeting ,San Francisco, CA, Dec 2007.

Behrangi, A., **Khakbaz, B**., Vrugt, J.A., Duan, Q and Sorooshian, S. "***Comment on: Dynamically dimensioned search algorithm for computationally efficient watershed model calibration,***" Presentation in Fall AGU Meeting, San Francisco, CA, Dec. 2007.

Khakbaz, B., Hsu, K. and Sorooshian, S., Ajami, N.K. "***Streamflow Simulation Using a Semi-Distributed Version of SAC-SMA Model***" Presentation on Distributed Modeling Intercomparison Project Workshop, Oklahoma Experiment Phase 2 (DMIP2), NWS Headquarter, Silver Spring, MD, Sept. 2007.

Khakbaz,B., Hsu, K., Sorooshian, S. "***Hydrologic Modeling for Flood Forecasting: A Distributed Modeling Experiment***." Poster on the Energy and Environment Research Symposium, The Henry Samueli School of Engineering , UC-Irvine, CA, May 2007.

Khakbaz, B., Tajrishi, M., Abrishamchi, A." ***Risk and Reliability Analysis of Overtopping of River Levees by Wind***" on the 3rd Iranian Hydraulic Conference, Tehran University, Tehran, Iran, 2001.

Conference Paper on" ***Evaluation of Maximum Water Level of Hamoon – Hirmand Lake and Dynamic Reliability Model of its Levee***" on the 6th International Conference on Civil Engineering (ICCE 2003), May 5-7, Isfahan University of Technology, Iran, 2001.

BOOKS

Khakbaz, B. et al. "***Soil Mechanics Laboratory***" Salekan, 1998. (Ranked 2nd among Iranian published books in 1999 – students' branch)

Khakbaz, B. and Shirazi, A. "***Structural Analysis*** "Dibagaran Tehran, 1999. (Useful for M. Sc. entrance exam of Civil Engineering; 7th edition was published in 2008.)

Hydrology Chapter of "Civil Engineering" book (A collection of multiple questions useful for Civil Engineers and Specially for M. Sc. entrance exam of civil Eng.-Iran Universities), 2002.

Hydrology notations for civil Engineers in "Khaneh Omran" Institute, 2002.(**Khakbaz, B**. &Behrangi, A.).

Proof Editor of "Hydraulics" book , *Dibagaran Tehran* Institute, 2003. (**Khakbaz, B**. & Behrangi, A.).